STATE OF NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY

PERMIT

TO DISCHARGE WASTEWATER UNDER THE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provision of North Carolina General Statute 143-215.1, other lawful standards and regulations promulgated and adopted by the North Carolina Environmental Management Commission, and the Federal Water Pollution Control Act, as amended,

Carolina Power and Light Company d/b/a Progress Energy Carolinas, Inc.

is hereby authorized to discharge wastewater from a facility located at

H.F. Lee Steam Electric Plant 1677 Old Smithfield Road Goldsboro, North Carolina Wayne County

to receiving waters designated as the Neuse River in the Neuse River Basin in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, III, and IV hereof.

The permit shall become effective November 1, 2009.

This permit and the authorization to discharge shall expire at midnight on May 31, 2013

Signed this day October 14, 2009.

Original signed by Gil Vinzani, for

Coleen H. Sullins, Director Division of Water Quality By Authority of the Environmental Management Commission

SUPPLEMENT TO PERMIT COVER SHEET

All previous NPDES Permits issued to this facility, whether for operation or discharge are hereby revoked. As of this permit issuance, any previously issued permit bearing this number is no longer effective. Therefore, the exclusive authority to operate and discharge from this facility arises under the permit conditions, requirements, terms, and provisions included herein.

Carolina Power and Light Company d/b/a Progress Energy Carolinas, Inc.

is hereby authorized to:

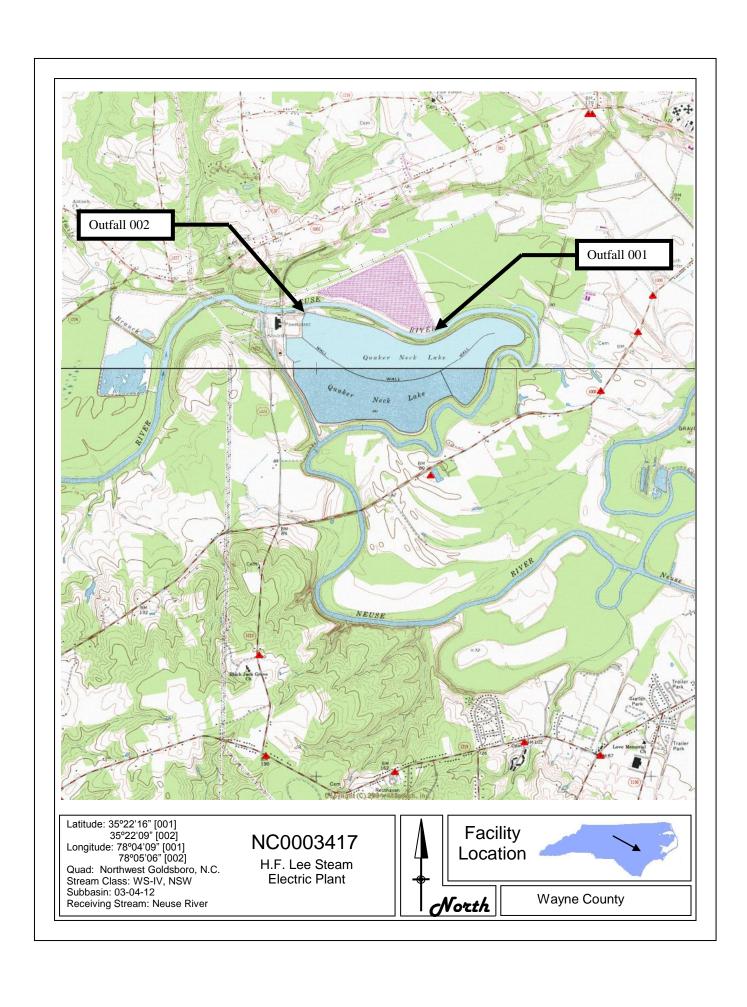
1. Continue to discharge the following treated wastestreams from Carolina Power and Light Company d/b/a Progress Energy Carolinas, Inc. H. F. Lee Steam Electric Plant located at 1677 Smithfield Road, Goldsboro, Wayne County:

Ash Pond (Outfall 001)

- ash transport wastewater, including effluent from a Rotamix System
- precipitator and air pre-heater wash water
- combustion turbine wash water
- filter plant blowdown and wash water
- stormwater from ash line trench.

Cooling Water Pond (Outfall 002)

- recirculated condenser cooling water
- non-contact cooling water (service water)
- coal pile runoff
- low volume wastes
- sanitary wastes
- stormwater runoff
- evaporative cooler wastewater and containment stormwater from the combustion turbine site
- 2. Discharge from said treatment works (via Outfalls 001 and 002) into the Neuse River, a Class WS-IV NSW water in the Neuse River Basin, at the locations specified on the attached map.



SECTION A(1). EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge treated wastewater from Outfall 001 (Ash Pond). Such discharges shall be limited and monitored by the Permittee as specified below:

	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS			
EFFLUENT CHARACTERISTICS	Monthly Average	Weekly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location 1	
Flow				Daily	Pump logs or similar reading	I or E	
Oil and Grease	15.0 mg/L		20.0 mg/L	2/Month	Grab	E	
Total Suspended Solids	30.0 mg/L		100.0 mg/L	2/Month	Grab	E	
Total Arsenic				Quarterly	Grab	E	
Total Selenium ²		242 ug/L	56 ug/L	Weekly	Grab	E	
рН	6.0 ≤ pH ≤ 9.0			Weekly	Grab	Е	
TKN (mg/L)	Monitor and Report			Weekly	Grab	E	
$N0_3$ -N + NO_2 -N (mg/L))	Monitor and Report			Weekly	Grab	E	
TN (mg/L)	Monitor and Report			Weekly	Grab	E	
TN Load ³	Monitor & Report (lb/Mo)		Monthly	Calculated	Е		
	Monitor & Report (lb/Yr)		Annually	Calculated	E		
Total Phosphorus mg/L				Monthly	Grab	Е	
Chronic Toxicity ⁴				Quarterly	Grab	E	

Notes:

- 1. Sample locations: E- Effluent, I- Influent
- 2. The total selenium limits and requirement for weekly sampling become effective on January 1, 2014. The Permittee shall continue to report quarterly samples until that date. See Special Condition A.(9.).
- 3. See Special Condition A(5), Total Nitrogen Calculations.
- 4. Chronic Toxicity (*Ceriodaphnia*) at 2.1%; January March, April June, July September., October December.; see Special Condition A (3).

There shall be no discharge of polychlorinated biphenyls (PCBs).

There shall be no discharge of floating solids or visible foam in other than trace amounts.

SECTION A(2). EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge treated wastewater from Outfall 002 (Cooling Water Pond) under specified conditions ¹. Such discharges shall be limited and monitored by the Permittee as specified below:

	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS		
EFFLUENT CHARACTERISTICS	Monthly Average	Weekly Average	Daily Maximum	Monthly Average	Weekly Average	Sample Location ²
Flow				Each Event	Estimate	OS
Oil and Grease	15.0 mg/L		20.0 mg/L	Each Event	Grab	os
Total Suspended Solids	30.0 mg/L		100.0 mg/L	Each Event	Grab	os
Total Arsenic				Each Event	Grab	os
Total Copper				Each Event	Grab	os
Total Iron				Each Event	Grab	os
Total Selenium				Each Event	Grab	os
Total Residual Chlorine ³				Each Event	Grab	os
рН	6.0 ≤ pH ≤ 9.0		Each Event	Grab	os	
Temperature ⁴				Each Event	Grab	os
Acute Episodic Toxicity ⁵				Each Event	Grab	os

Notes:

- 1. This discharge is permitted only in the following cases: a) caused by extreme rainfall; b) where unavoidable to prevent loss of life, severe property damage, or damage to the cooling pond structure; or c) for necessary maintenance activities. In the event that a discharge occurs, the permittee shall inform the Washington Regional Office (252-946-6481) by telephone as soon as possible, but in no case later than 48 hours after the discharge occurs. The permittee shall also provide the following information, in writing, to the Division within 10 days of the discharge: a) a description and cause of the discharge; b) the duration of the discharge, including time and dates, anticipated time the discharge is expected to continue, and steps being taken to reduce, prevent, and eliminate reoccurrence of the discharge. The permittee shall take all reasonable steps necessary to minimize any adverse impact to navigable waters resulting from the discharge, including such monitoring as necessary to determine the environmental impact of the discharge.
- 2. Sample locations: OS Outfall structure.
- 3. Monitoring requirement for total residual chlorine (TRC) applies only when chlorine is added to the treatment system. Neither free available chlorine (FAC) nor TRC may be discharged from any single generating unit for more than two hours in any single day, and not more than one unit in the plant may discharge FAC or TRC, unless the discharger demonstrates to the Division that the unit(s) cannot operate at or below this level of chlorination.
- 4. As a result of this discharge, the temperature of the receiving water shall not be increased by more than 2.8°C above ambient water temperature and in no case exceed 32°C.
- 5. Acute Episodic Toxicity (Fathead Minnow 24-hr); LC50; see Special Condition A (4).

There shall be no discharge of polychlorinated biphenyls (PCBs).

There shall be no discharge of floating solids or visible foam in other than trace amounts.

SUPPLEMENT TO EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS SPECIAL CONDITIONS

A (3). CHRONIC TOXICITY PERMIT LIMIT (QUARTERLY) - Outfall 001 (Ash Pond)

The effluent discharge shall at no time exhibit observable inhibition of reproduction or significant mortality to *Ceriodaphnia dubia* at an effluent concentration of 2.1%.

The permit holder shall perform at a minimum, *quarterly* monitoring using test procedures outlined in the "North Carolina *Ceriodaphnia* Chronic Effluent Bioassay Procedure," Revised February 1998, or subsequent versions or "North Carolina Phase II Chronic Whole Effluent Toxicity Test Procedure" (Revised-February 1998) or subsequent versions. The tests will be performed once during each calendar quarter (January - March, April - June, July - September, and October - December). Effluent sampling for this testing shall be performed at the NPDES permitted final effluent discharge below all treatment processes.

If the test procedure performed as the first test of any single quarter results in a failure or ChV below the permit limit, then multiple-concentration testing shall be performed at a minimum, in each of the two following months as described in "North Carolina Phase II Chronic Whole Effluent Toxicity Test Procedure" (Revised-February 1998) or subsequent versions.

The chronic value for multiple concentration tests will be determined using the geometric mean of the highest concentration having no detectable impairment of reproduction or survival and the lowest concentration that does have a detectable impairment of reproduction or survival. The definition of "detectable impairment," collection methods, exposure regimes, and further statistical methods are specified in the "North Carolina Phase II Chronic Whole Effluent Toxicity Test Procedure" (Revised-February 1998) or subsequent versions.

All toxicity testing results required as part of this permit condition will be entered on the Effluent Discharge Monitoring Form (MR-1) for the months in which tests were performed, using the parameter code TGP3B for the pass/fail results and THP3B for the Chronic Value. Additionally, DWQ Form AT-3 (original) is to be sent to the following address:

Attention: Environmental Sciences Section

North Carolina Division of Water Quality

1621 Mail Service Center

Raleigh, North Carolina 27699-1621

Completed Aquatic Toxicity Test Forms shall be filed with the Environmental Sciences Section no later than 30 days after the end of the reporting period for which the report is made.

Test data shall be complete, accurate, include all supporting chemical/physical measurements and all concentration/response data, and be certified by laboratory supervisor and ORC or approved designate signature. Total residual chlorine of the effluent toxicity sample must be measured and reported if chlorine is employed for disinfection of the waste stream.

Should there be no discharge of flow from the facility during a month in which toxicity monitoring is required, the permittee will complete the information located at the top of the aquatic toxicity (AT) test form indicating the facility name, permit number, pipe number, county, and the month/year of the report with the notation of "No Flow" in the comment area of the form. The report shall be submitted to the Environmental Sciences Section at the address cited above.

Should the permittee fail to monitor during a month in which toxicity monitoring is required, monitoring will be required during the following month. Should any test data from this monitoring requirement or tests performed by the North Carolina Division of Water Quality indicate potential impacts to the receiving stream, this permit may be re-opened and modified to include alternate monitoring requirements or limits.

NOTE: Failure to achieve test conditions as specified in the cited document, such as minimum control organism survival, minimum control organism reproduction, and appropriate environmental controls, shall constitute an invalid test and will require immediate follow-up testing to be completed no later than the last day of the month following the month of the initial monitoring.

A (4). ACUTE TOXICITY MONITORING (EPISODIC) - Outfall 002 (Cooling Water Pond)

The permittee shall conduct FIVE acute toxicity tests using protocols defined as definitive in E.P.A. Document EPA/600/4-90/027 entitled "Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms." The monitoring shall be performed as a Fathead Minnow (*Pimephales promelas*) 24 hour static test. Effluent samples for self-monitoring purposes must be obtained below all waste treatment. Sampling and subsequent testing will occur during the first five discrete discharge events after the effective date of this permit. After monitoring of the first five toxicity tests, the permittee will conduct one test annually, with the annual period beginning in January of the next calendar year. The annual test requirement must be performed and reported by June 30. If no discharge occurs by June 30, verbal notification shall be made to the Division within two weeks of this date by contacting the Aquatic Toxicology Unit at 919-733-2136. Verbal notification shall be followed by the Aquatic Toxicity Test Form indicating "No Discharge through June 30th" within 30 days following the reporting period. Toxicity testing will be performed on the next discharge event for the annual test requirement.

The parameter code for this test is TAE6C. All toxicity testing results required as part of this permit condition will be entered on the Effluent Discharge Form (MR-1) for the month in which it was performed, using the appropriate parameter code. Additionally, DWQ Form AT-1 (original) is to be sent to the following address:

Attention: North Carolina Division of Water Quality

Environmental Sciences Section 1621 Mail Service Center

Raleigh, North Carolina 27699-1621

Completed Aquatic Toxicity Test Forms shall be filed with the Environmental Sciences Section no later than 30 days after the end of the reporting period for which the report is made.

Test data shall be complete and accurate and include all supporting chemical/physical measurements performed in association with the toxicity tests, as well as all dose/response data. Total residual chlorine of the effluent toxicity sample must be measured and reported if chlorine is employed for disinfection of the waste stream.

Should any test data from either these monitoring requirements or tests performed by the North Carolina Division of Water Quality indicate potential impacts to the receiving stream, this permit may be re-opened and modified to include alternate monitoring requirements or limits.

NOTE: Failure to achieve test conditions as specified in the cited document, such as minimum control organism survival and appropriate environmental controls, shall constitute an invalid test and will require immediate follow-up testing to be completed no later than the last day of the month following the month of the initial monitoring.

A. (5.) TOTAL NITROGEN CALCULATIONS - Outfall 001 (Ash Pond)

The Permittee shall calculate the <u>annual mass loading</u> of total nitrogen as the sum of monthly loadings, according to the following equations:

(1) Monthly Mass Loading (lb/mo) = TN x Q x 8.34

where:

TN = the average total nitrogen concentration (mg/L) of the grab samples collected during the month

Q = the total wastewater flow discharged during the month (MG/month)

8.34 = Conversion factor

(2) Annual Mass Loading (lb/yr) = \sum (Monthly Mass Loadings) for the calendar year

The Permittee shall report the total nitrogen concentration for each sample and the monthly mass loading in the appropriate discharge monitoring report. The annual mass loading of total nitrogen shall be reported in the December discharge monitoring report, which is due in January of the following year.

Note: TN concentrations reported as "less than detection level" shall be treated as one-half of the detection level for purposes of TN mass loading calculations.

A. (6) ANNUAL LIMITS FOR TOTAL NITROGEN

- a. Total Nitrogen (TN) allocations and TN Load limits for NPDES dischargers in the Neuse River basin are annual limits and are applied for the calendar year.
- b. For any given calendar year, the Permittee shall be in compliance with the annual TN Load limit in this Permit if:
 - i. the Permittee's annual TN Load is less than or equal to said limit, or
 - ii. the Permittee is a Co-Permittee Member of a compliance association.
- c. The TN Load limit in this Permit (if any) may be modified as the result of allowable changes in the Permittee's TN allocation.
 - i. Allowable changes include those resulting from purchase of TN allocation from the Ecosystem Enhancement Program (EEP); purchase, sale, trade, or lease of allocation between the Permittee and other dischargers; regionalization; and other transactions approved by the Division.
 - ii. The Permittee may request a modification of the TN Load limit in this Permit to reflect allowable changes in its TN allocation. Upon receipt of timely and proper application, the Division will modify the permit as appropriate and in accordance with state and federal program requirements.
 - iii. Changes in TN limits become effective on January 1 of the year following permit modification. The Division must receive application no later than August 31 for changes proposed for the following calendar year.

iv. Application shall be sent to:

NCDWQ / NPDES Unit Attn: Neuse River Basin Coordinator Mail Service Center Raleigh, NC 27699-1617

- d. If the Permittee is a member and co-permittee of an approved compliance association, its TN discharge during that year is governed by that association's group NPDES permit and the TN limits therein.
 - i. The Permittee shall be considered a Co-Permittee Member for any given calendar year in which it is identified as such in Appendix A of the association's group NPDES permit.
 - ii. Association roster(s) and members' TN allocations will be updated annually and in accordance with state and federal program requirements.
 - iii. If the Permittee intends to join or leave a compliance association, the Division must be notified of the proposed action in accordance with the procedures defined in the association's NPDES permit.
 - (1) Upon receipt of timely and proper notification, the Division will modify the permit as appropriate and in accordance with state and federal program requirements.
 - (2) Membership changes in a compliance association become effective on January 1 of the year following modification of the association's permit.
- e. The TN monitoring and reporting requirements in this Permit remain in effect until expiration of this Permit and are not affected by the Permittee's membership in a compliance association.

A. (7) TOTAL NITROGEN ALLOCATIONS

a. The following table lists the Total Nitrogen (TN) allocation(s) assigned to, acquired by, or transferred to the permittee in accordance with the Neuse River nutrient management rule (T15A NCAC 02B.0234) and the status of each as of permit issuance. For compliance purposes, this table does not supercede any TN limit(s) established elsewhere in this permit or in the NPDES permit of a compliance association of which the Permittee is a Co-Permittee Member.

AllocationT	Source	Date	Allocation An	Status	
ype	ype		Estuary (lb/ year)	Discharge (lb/year)	Status
Base (2)					_

Footnote:

- (1) Transport Factor = 70%
- (2) Progress Energy's Lee Steam Plant received no TN allocation under the Neuse rule but is allowed a baseline TN load of 3,260 lb/yr at its Outfall 001 (2,282 lb/yr at the estuary), which is not part of the point source wasteload allocation.

A.(8.) TOTAL NITROGEN REOPENER CLAUSE

Progress Energy's Lee Steam Plant received no TN allocation under the Neuse rule, but is allowed a baseline TN load of 3,260 lb/yr at its Outfall 001 (2,282 lb/yr at the estuary), which is not part of the point source wasteload allocation. Effective January 1, 2009, Progress' TN discharge is governed through NPDES permit NCC000001 for the Neuse River Compliance Association, of which it is a member; and Progress has leased additional allocation from the NRCA from 2009 through 2013 in order to ensure coverage for any TN discharges from its new Rotamix system that cause it to exceed the baseline level. This individual permit, NC0003417, does not include a TN limit for Progress' discharge and does not reflect the lease amount (9,000 lb/yr for 2009 and subject to adjustment as needed).

In the event that Progress Energy fails to maintain sufficient allocation to cover its excess TN load, that is, the load in excess of its baseline allowance, the Division may re-open this permit to establish enforceable TN limits and other necessary appropriate nutrient control requirements, subject to the standard public process afforded such permit modifications.

A.(9.) COMPLIANCE SCHEDULE FOR TOTAL SELENIUM LIMITS

The limits and weekly monitoring requirement for total selenium in Outfall 001 go into effect on January 1, 2014. Until that date, the Permittee shall continue to monitor and report total selenium concentration on a quarterly basis.

In order to comply with selenium limits, and in order to reduce TN discharges to the Neuse River, Progress Energy has agreed to construct a dry fly ash transport system. This will be a complex undertaking, requiring finance from the corporate parent, engineering design, and many different permits. During the interim time, the Neuse River Nutrients requirements for allocation will be enforced.

Progress Energy and the Division of Water Quality have agreed upon the following compliance schedule in order to make the facility compliant with the selenium limits, with annual progress reports beginning on July 1, 2010 and lasting until the dry fly ash transport system is operational. The annual progress reports should be addressed to:

NCDWQ / NPDES Unit Attn: Eastern NPDES Supervisor 1617 Mail Service Center Raleigh, NC 27699-1617

- 1. Evaluation and site selection identify preferred monofill site by December 31, 2009.
- 2. Begin formal permitting processes in the first quarter of 2010. (Monofill, air, wastewater and local permits.)
- 3. During the permitting process, perform engineering design and request capital funding for the project.
- 4. Begin construction by the end of the first quarter of 2012.
- 5. Complete construction and have dry fly ash system and monofill or other measures to comply with all limits operational by December 31, 2013.

A.(10.) SELENIUM REOPENER CLAUSE

If Progress Energy converts the Lee Steam Plant to operate on a fuel other than coal, and completely eliminates the combustion of coal at that site, the Division of Water Quality may reopen the permit and make changes to limits and conditions as are appropriate. In the event that, due to causes completely out of the control of Progress Energy, the conversion to dry fly ash handling is delayed, the Division may reopen the permit and make revisions to the compliance schedule as required.

A. (11.) 316(b) REQUIREMENTS

The facility shall continue to properly operate and maintain the CWIS.

A. (12) BIOCIDE CONDITION

The permittee shall not discharge any biocides that have not been previously approved in conjunction with the permit application. For biocides not previously approved by the Division of Water Quality, the permittee shall notify the Director in writing prior to use of these biocides. Completion of Biocide Worksheet Form 101 is not necessary for those outfalls with toxicity testing requirements.